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D06m-01/24 (02-03-72)...

GRAFTING ACRYLIC MONOMERS ONTO FIBRE MATERIALS - TO RAISE WATER-ABSORPTION..

hydrophobic textiles. Crease-resistance and dyeability and acid resistance of polyamides are also improved.

ADVANTAGE

Homopolymer formation is prevented, bath can be re-used.

EXAMPLE

10 g. multifilament nylon 6 ("Dynamid" (RTM)) is irradiated with 1.5 Mrad γ -radiation from Co-60 source, and then placed in aq. acrylamide soln. of 50 g/l concn. and 1.2 cP initial viscosity (at 20°C and shearing strength 10 pond/sq.cm.). Air is expelled, and material moved at 5 m/min. for 3 hrs. at 94 ± 3°C. removed from water, washed and dried. Prod. has 55-65 % wt. increase, corresponding to degree of grafting. Equilibrium air humidity absorption is 9% (20°C, 65% R.H.). Water retention resembled that of cotton. Product had good dye-affinity and strength was unaffected.

Viscosity of spent bath was 56 cP at 20°C and 20 pond/sq.cm. shearing strength, and acrylamide was added to prepare bath for re-use. Process could be repeated and after 18th graft, bath viscosity was 272 cP at 20°C and shearing strength 50 pond/sq.cm.

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NEW

Raising hydrophilic properties of fibre material or products (esp. polyamides) by (a) forming active sites (e.g. by irradiation), (b) grafting onto the fibres a soln. of acrylic gp.-contg. monomer(s) below 100°C and (c) washing. (b) is effected in a bath having ≥ 1.2 cP viscosity at 20°C at 10 pond/sq.cm. shearing strength and ≤ 300 cP viscosity at 50 pond/sq.cm. During grafting, fibre material is agitated without breaking gel structure formed in monomer soln. until ≤ 300 pond/sq.cm. shearing strength at 20°C is reached. After grafting and replacement of spent monomer, evaporated water and necessary additives, monomer soln. is opt. re-used for further grafting.

USE

Improving water absorbency of clothing from

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